AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of claims:

1. (Currently Amended) A multi-line utility power transmission system comprising:

a first power transmission line having a first impedance characteristic;

a second power transmission line including a superconductor, in parallel with the first power transmission line, and having a second impedance characteristic less than the first impedance characteristic; and

a power flow controller, coupled to the second power transmission line, for selectively regulating during normal operating conditions of the power transmission system by a variable amount at least one of the magnitude and direction of the power flowing through the second power transmission line;

wherein the power flow controller is configured to selectively regulate the power flowing through the second power transmission line to provide at least one of load balancing between the first power transmission line and the second power transmission line and flow optimization between the first power transmission line and the second power transmission line;

wherein the power flow controller is configured to provide incremental flow change of current.

2. (Cancelled)

3. (Previously Amended) The multi-line power transmission system of claim 1 wherein the superconductor is a cold-dielectric high temperature superconductor.

4. (Original) The multi-line power transmission system of claim 3 wherein the high temperature superconductor is chosen from the group consisting of: thallium-

barium-calcium-copper-oxide; bismuth-strontium-calcium-copper-oxide; mercury-barium-calcium-copper-oxide; and yttrium-barium-copper-oxide.

5. (Original) The multi-line power transmission system of claim 3 further comprising a refrigeration system for cooling the high temperature superconductor at a temperature sufficiently low to exhibit superconducting characteristics.

6. (Original) The multi-line power transmission system of claim 1 wherein the first power transmission line is a cross-linked polyethylene power transmission line.

7. (Previously Amended) The multi-line power transmission system of claim 1 wherein the power flow controller is a reactor.

8. (Original) The multi-line power transmission system of claim 1 wherein the power flow controller is a bi-directional power flow controller that regulates the direction of the power transferred through the second power transmission line.

9. (Original) The multi-line power transmission system of claim 8 wherein the bi-directional power flow controller is a phase angle regulator.

10. (Currently Amended) A method comprising:

connecting a first power transmission line having a first impedance characteristic in parallel with a second power transmission line including a superconductor and having a second impedance characteristic less than the first impedance characteristic;

supplying power to the first power transmission line and the second power transmission line;

determining a level of power flow for the second power transmission line; and

selectively regulating during normal operating conditions of the power transmission system by a variable amount the power transferred through the second

power transmission line to provide at least one of load balancing between the first power transmission line and the second power transmission line and flow optimization between the first power transmission line and the second power transmission line;

wherein selectively regulating the amount of power transferred through the second power transmission line includes changing the flow of current incrementally.

11. (Original) The method of claim 10 further comprising regulating the direction of the power transferred through the second power transmission line.

12. (Cancelled)

13. (Previously Amended) The method of claim 10 wherein the superconducting power transmission line is a cold dielectric high temperature superconductor.

14. (Original) The method of claim 10 further comprising maintaining the high temperature superconductor at an operating temperature sufficiently low to enable the high temperature superconductor to exhibit superconducting characteristics.

15. (Original) The method of claim 10 further comprising forming the first power transmission line with a cross-linked polyethylene.

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Previously Presented) The multi-line utility power transmission system of claim 1, wherein the power flow controller comprises a plurality of reactors, each of the reactors being configured to limit an amount of current that can flow on the second power transmission line.

20. (Previously Presented) The multi-line utility power transmission system of claim 19, wherein the power flow controller is configured such that a desired impedance characteristic for the second power transmission line can be achieved by activating or deactivating one or more of the plurality of reactors.

21. (Previously Presented) The multi-line utility power transmission system of claim 1, wherein the power flow controller is configured to provide a desired impedance characteristic to provide load balancing between the first power transmission line and the second power transmission line.

22. (Previously Presented) The multi-line utility power transmission system of claim 1, wherein the power flow controller is further configured to control a phase angle through the second power transmission line.

23. (New) A multi-line utility power transmission system comprising:

a first power transmission line having a first impedance characteristic;

a second power transmission line including a superconductor, in parallel with the first power transmission line, and having a second impedance characteristic less than the first impedance characteristic; and

a power flow controller, coupled to the second power transmission line, for selectively regulating during normal operating conditions of the power transmission system by a variable amount at least one of the magnitude and direction of the power flowing through the second power transmission line;

wherein the power flow controller is configured to selectively regulate the power flowing through the second power transmission line to provide at least one of load balancing between the first power transmission line and the second power transmission line and flow optimization between the first power transmission line and the second power transmission line;

wherein the power flow controller is further configured to restrict a total amount of current allowed to pass through the second power transmission line while maintaining a superconductive state of the second power transmission line.